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University

Glen Waverley Branch of the Australian Labor Party
Monday 26th September 2016

Public Transport Issues in Melbourne

Why Melbourne Metro and Grade Crossings are not the only concerns for Melbourne

Prof Graham Currie
Public Transport Research Group
Institute of Transport Studies
Monash University



Institute of Transport Studies (Monash)
The Australian Research Council Key Centre in Transport Management



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Introduction

Transport in Melbourne

Public Transport in Melbourne

The Drivers of Change

The Future



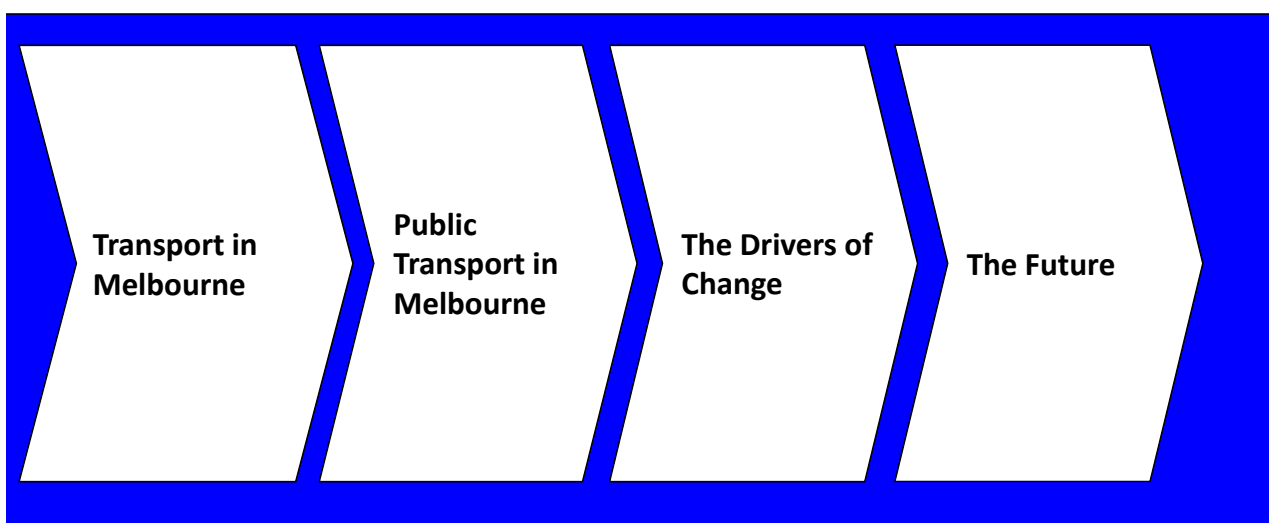
This presentation provides an overview of public transport in Melbourne...

Key Issues Covered

- What is the transport context of Melbourne?
- What are the major public transport problems in service provision and development
- How are services likely to develop in future?



...and is structured as follows



Introduction

Transport in Melbourne

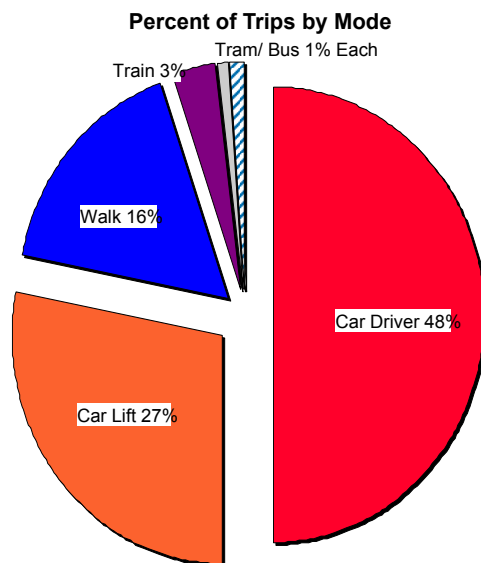
Public Transport in Melbourne

The Drivers of Change

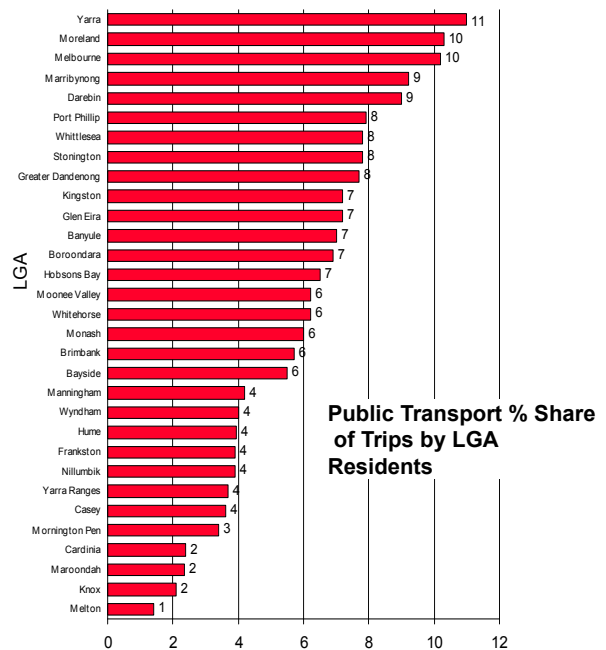
The Future



Melbourne is a car based society – 75% of trips are by car



Source: Melbourne on the move – VATS 1994



Car vehicle sales and ownership continue to rise

Total new passenger vehicles sold annually - Australia

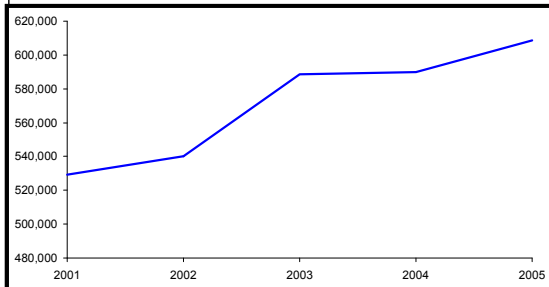


Figure 7.2: New passenger vehicle sales 2001-2005 (FCAI, 2006)

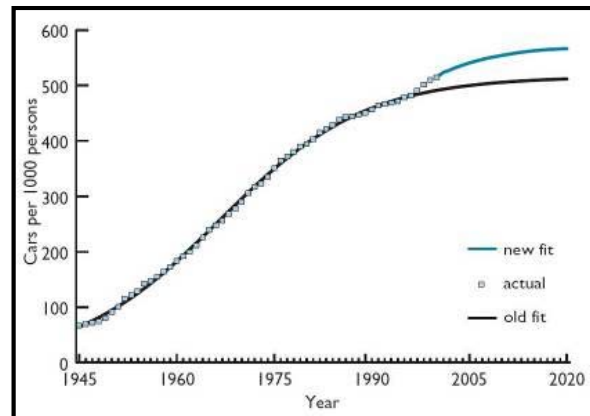
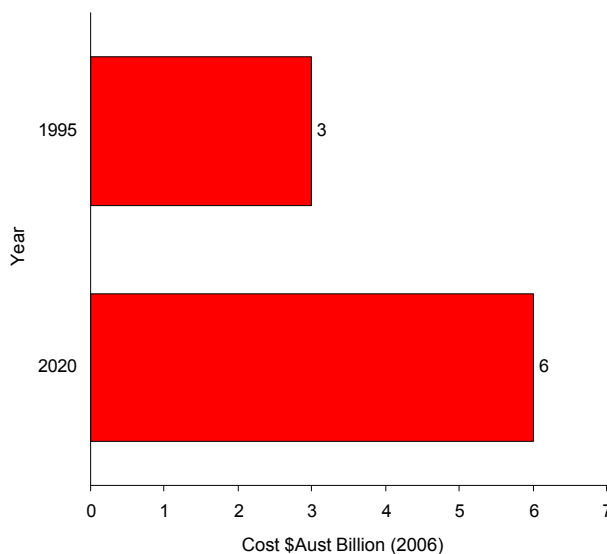


Figure 10.4: Revised projected per capita Australian motor vehicle ownership (BTRE, 2002, p.15)

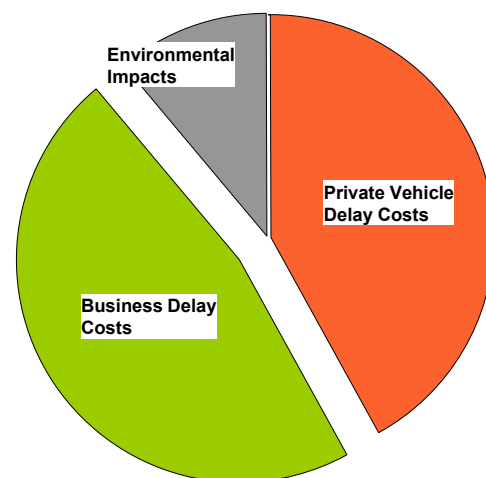
Urban traffic congestion in Melbourne costs \$3B p.a. (2005) and will double by 2020

Cost of Urban Traffic Congestion - Melbourne

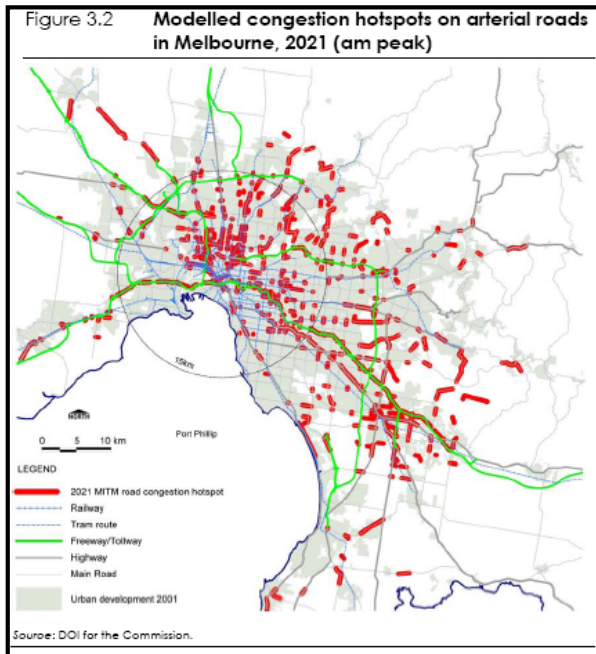
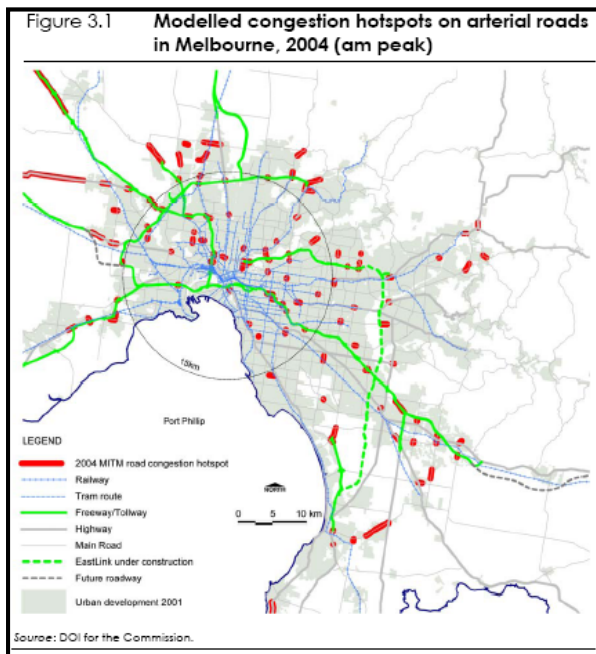


Source: BTRE (2006)

Share of 1995 Costs



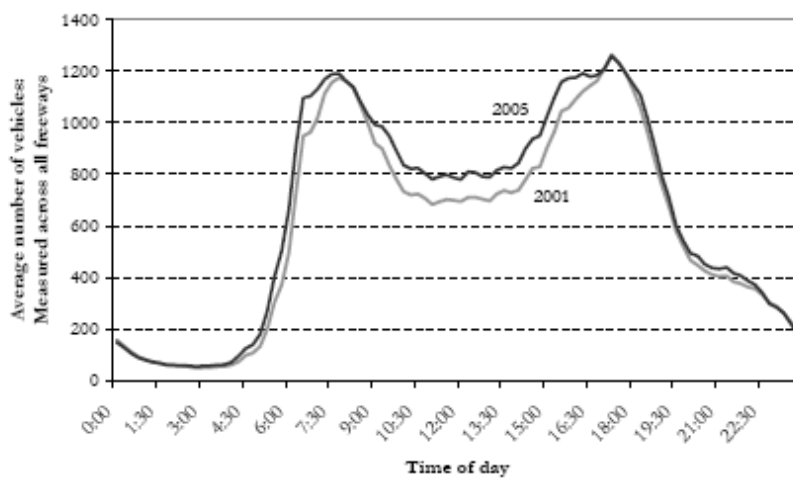
Congestion 'hotspots' are expected to spread spatially....



Source: VCEC (2006) *Inquiry into Managing Transport Congestion*

....and in Time

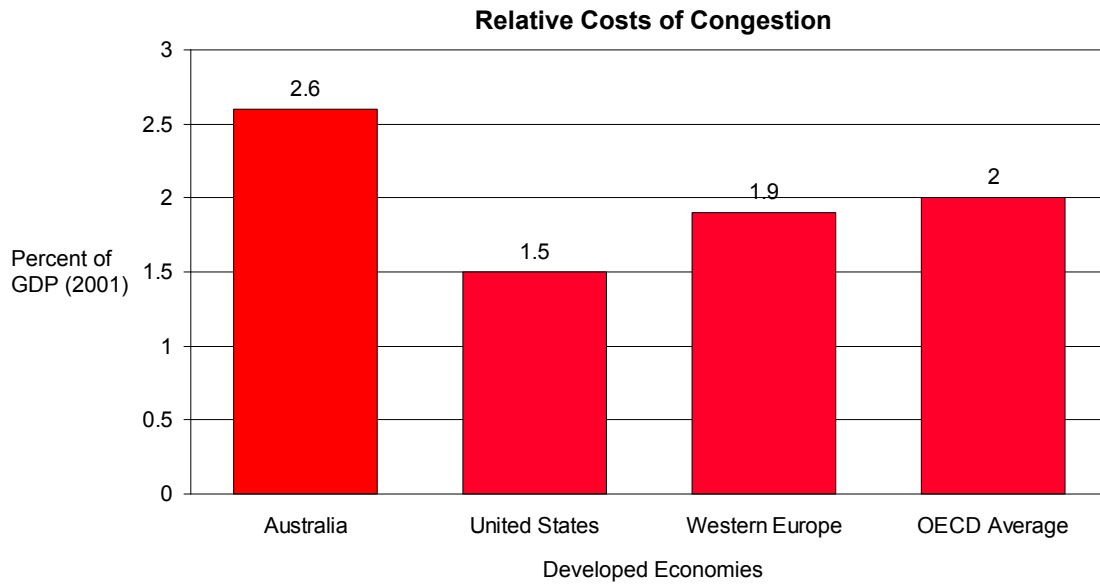
Figure 3.3 Peak spreading on Melbourne's freeways



Source: VicRoads.

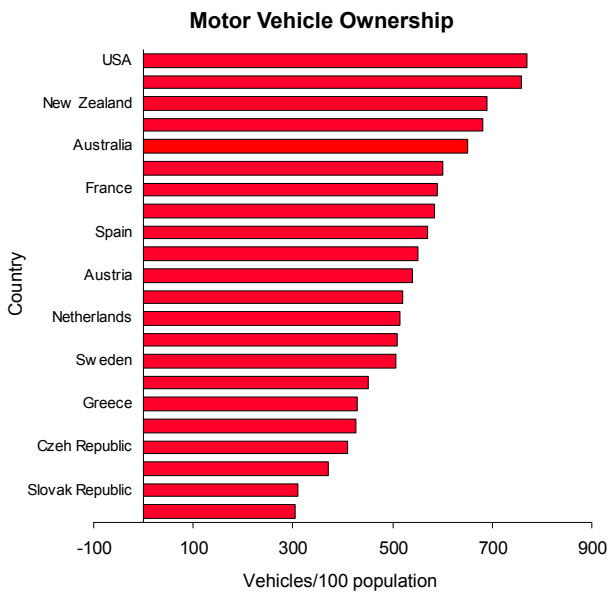
Source: VCEC (2006) *Inquiry into Managing Transport Congestion*

While all developed economies are affected, in Australia impacts are greater...

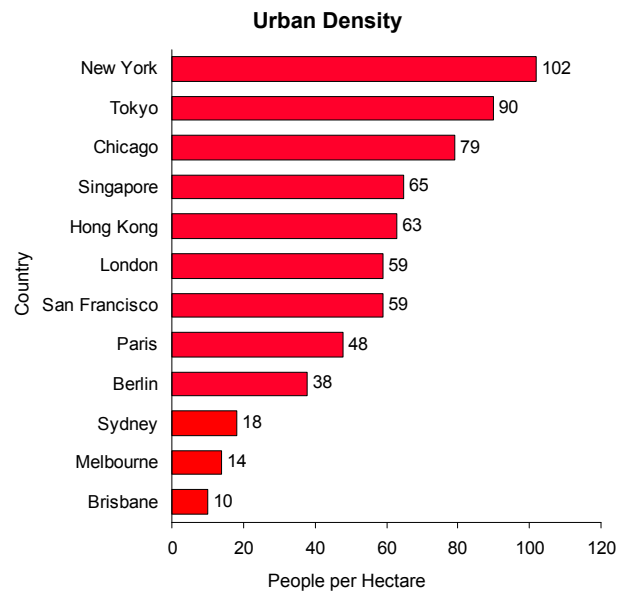


Source: ARA (2006) National Passenger Transport Agenda

...due to higher car dependency, low urban density, and.....

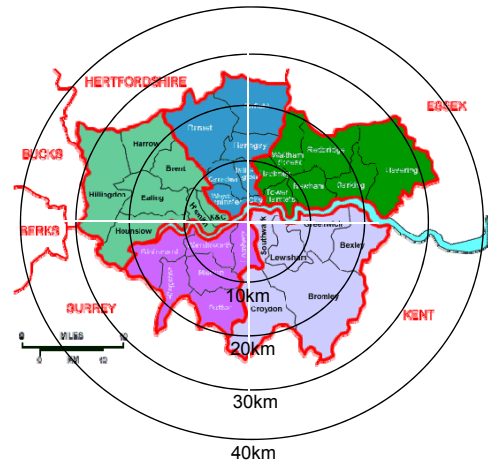
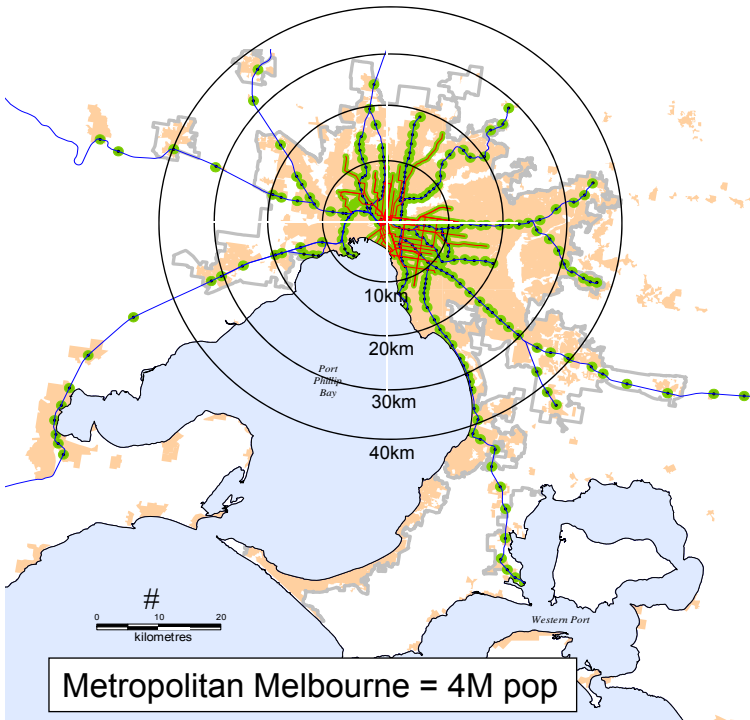


Source: OECD Factbook (2006)



Source: The Economist - Submission to the VCEC Inquiry into Managing Transport Congestion (2006)

...because our cities are GIGANTIC in scale



Introduction

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Public Transport in Melbourne

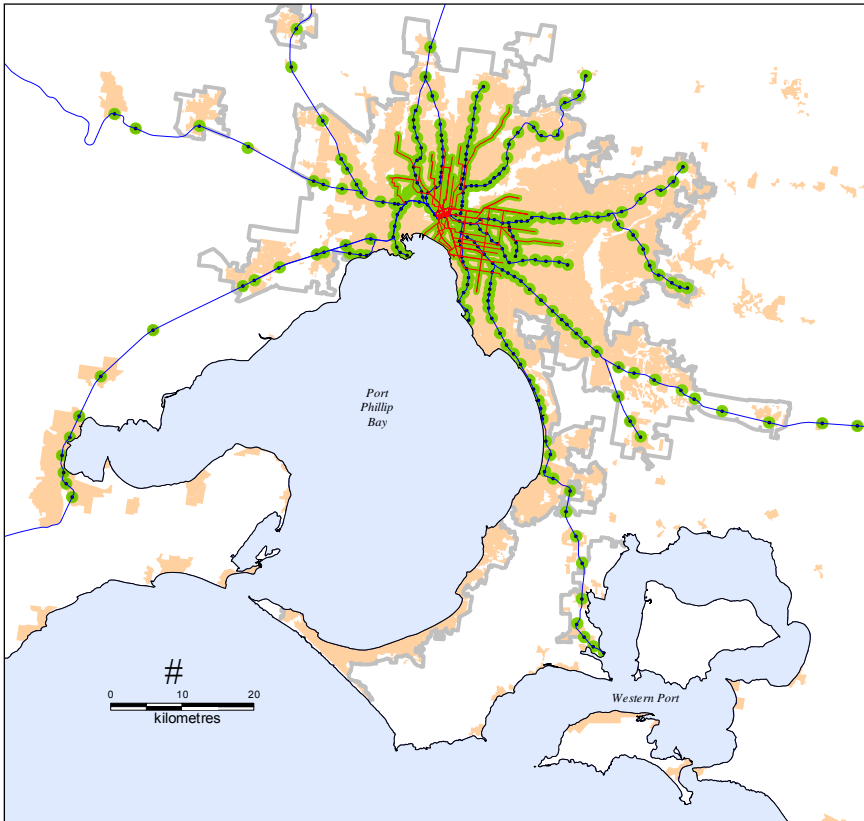
The Drivers of Change

The Future



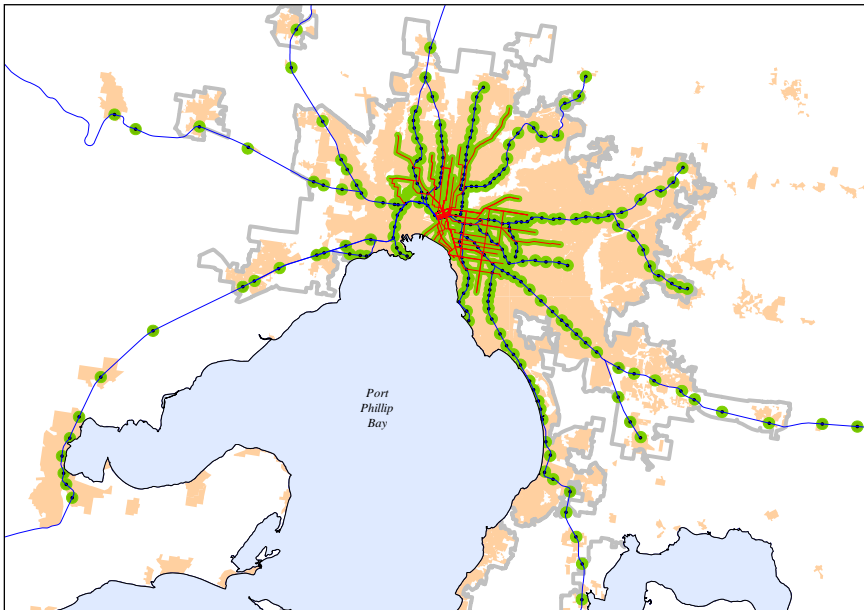
Buses **ARE** Melbourne's public transport for most residents, which is a problem....

- Over two thirds of Melbourne can only be serviced by bus services since rail and tram services lie considerable distances from where people live or where they want to travel to
- In 1996 the Metropolitan strategy team identified that 2.16M Melbournians lived in areas where buses were the only means of access to public transport. 0.98M lived within access distance of rail services



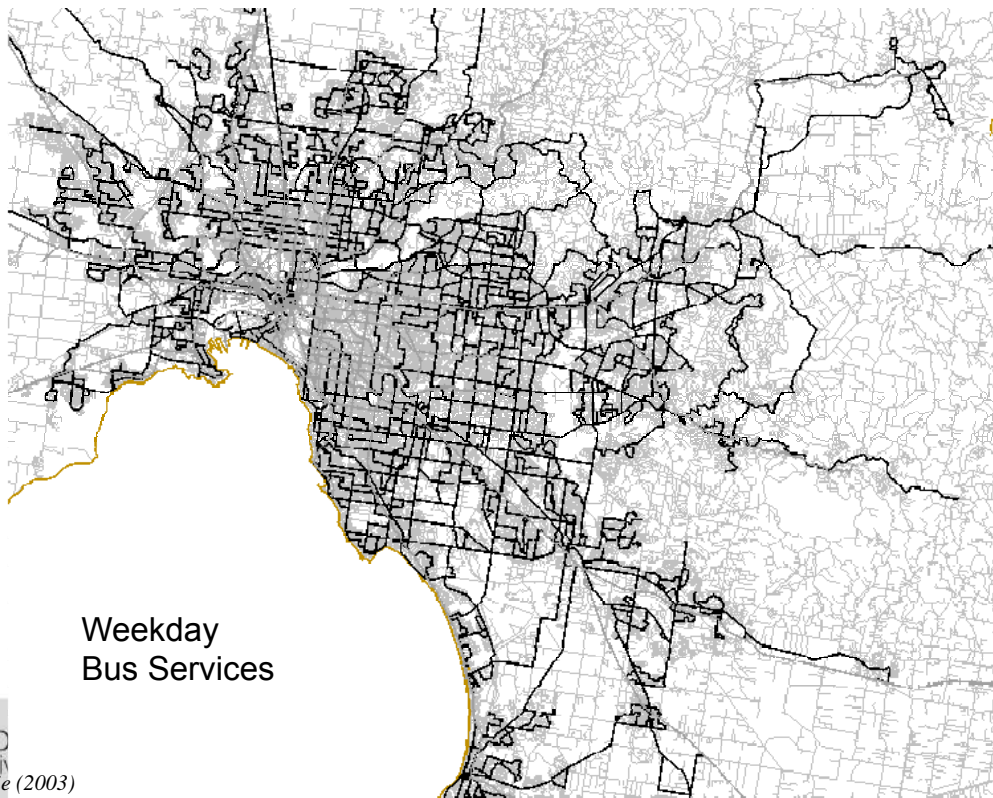
...because there aren't many

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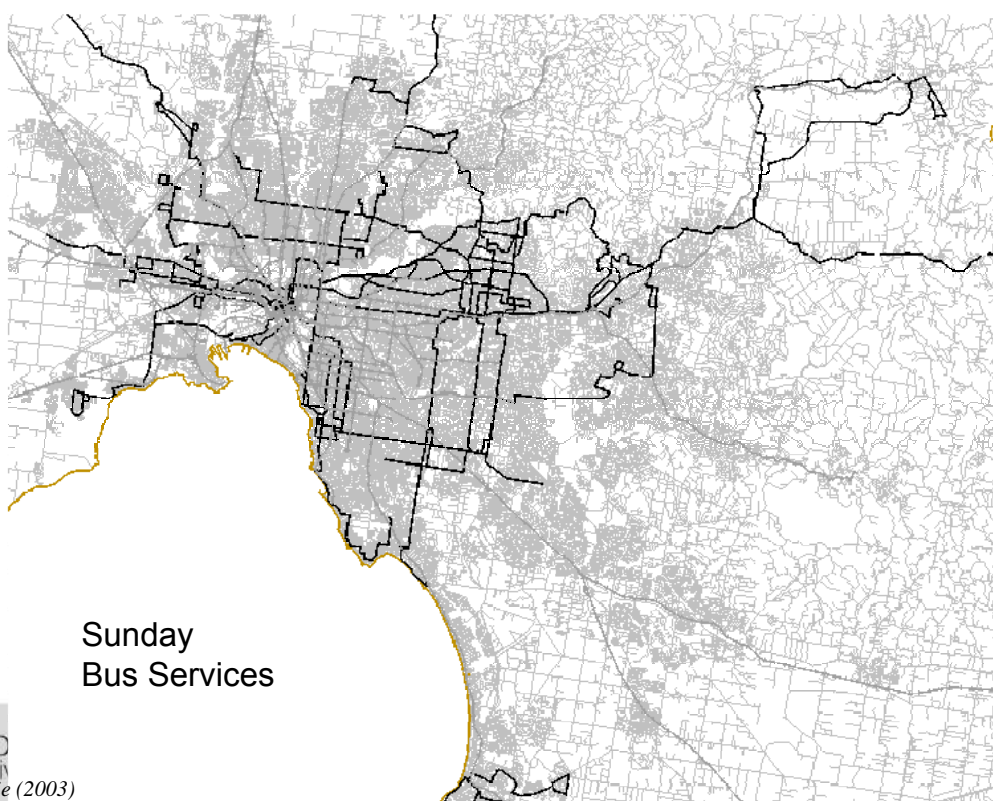


Weekday Service Frequency (2006)			Weekday Service Span	
	Peak	Off Peak	Weekday	
AV. MELBOURNE	40m	50m	AV. MELBOURNE	06:46-18:53

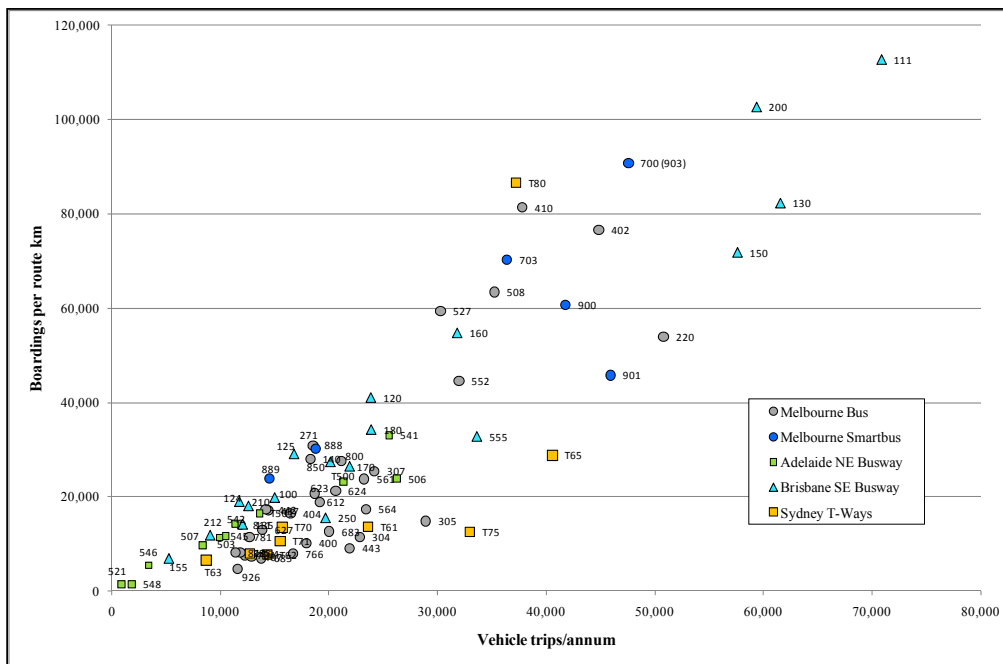
The bus network on weekdays...



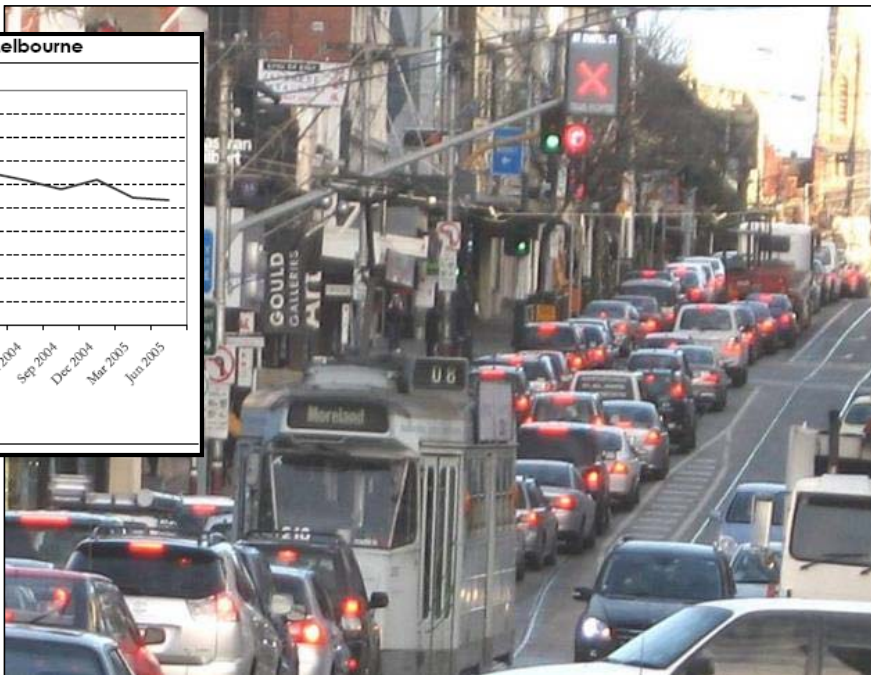
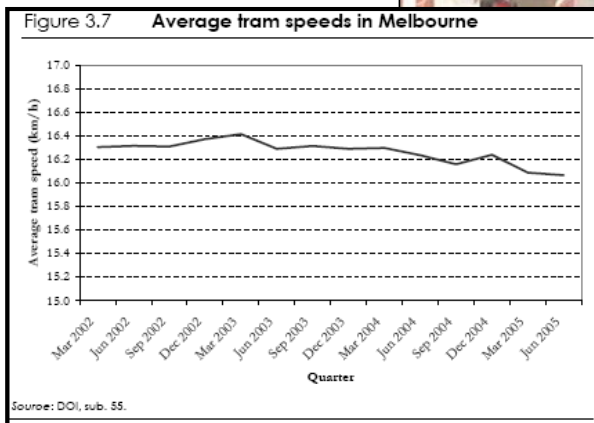
...contrasts somewhat with weekends



Frequency drives Australian ridership performance

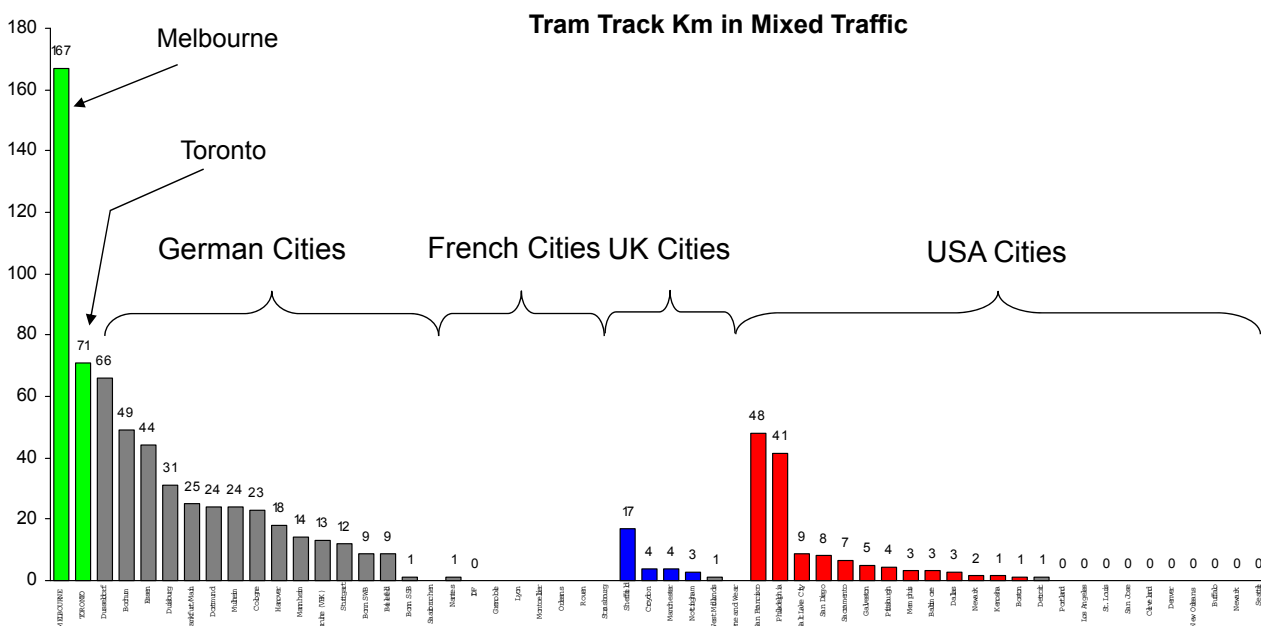


Tram services are struggling in growing traffic congestion



Source: VCEC (2006) *Inquiry into Managing Transport Congestion*

Melbourne is the worlds biggest "streetcar" system

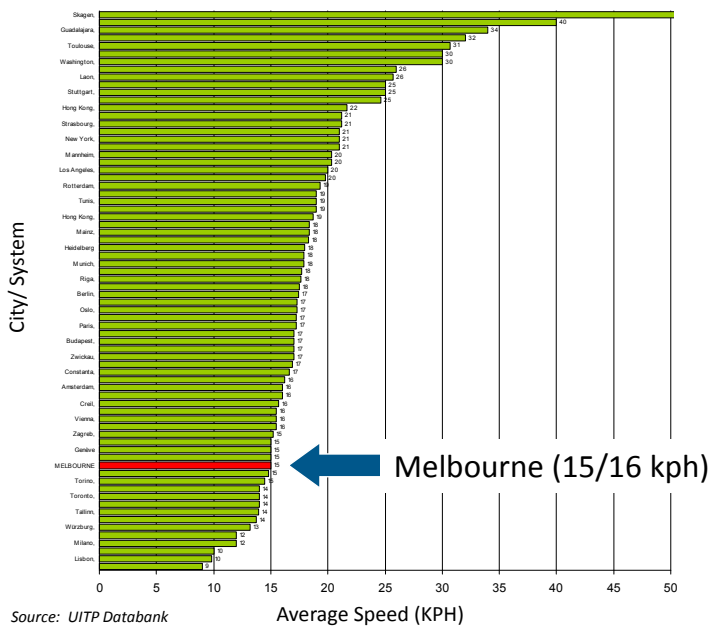


Source: Currie G and Shalaby A (2007) 'Success and Challenges in Modernising Streetcar Systems – Experience in Melbourne and Toronto' Transportation Research Record No 2006 Transportation Research Board Washington DC ISSN 0361-1981 pp 31-39 2007



Mixed Traffic service impedes performance

Average Operating Speeds – World Tram/Light Rail Systems

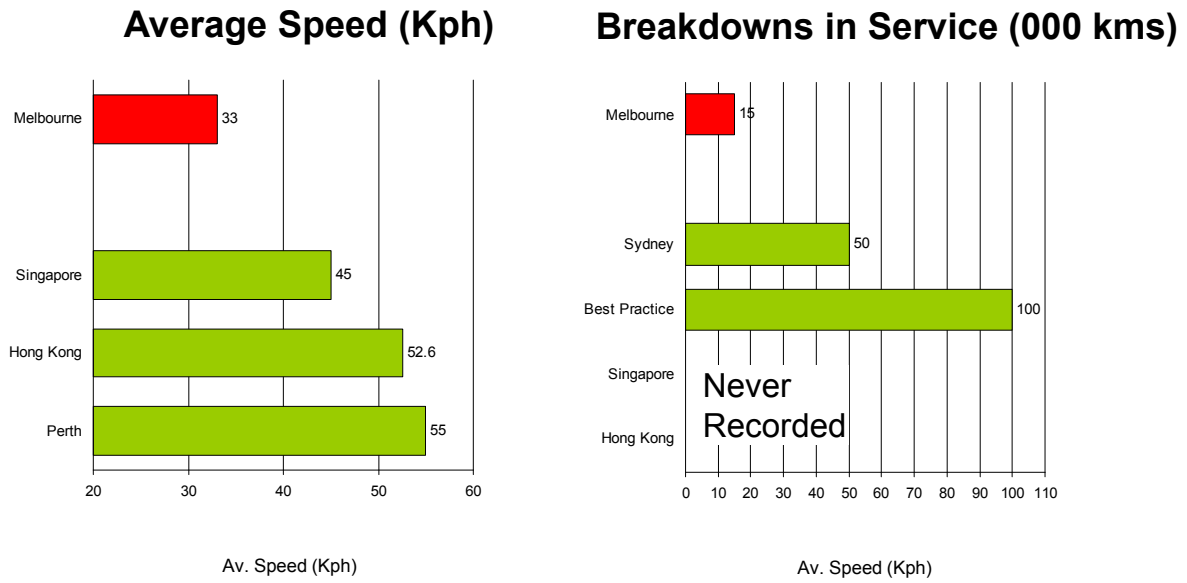


Melbourne Tram Reliability

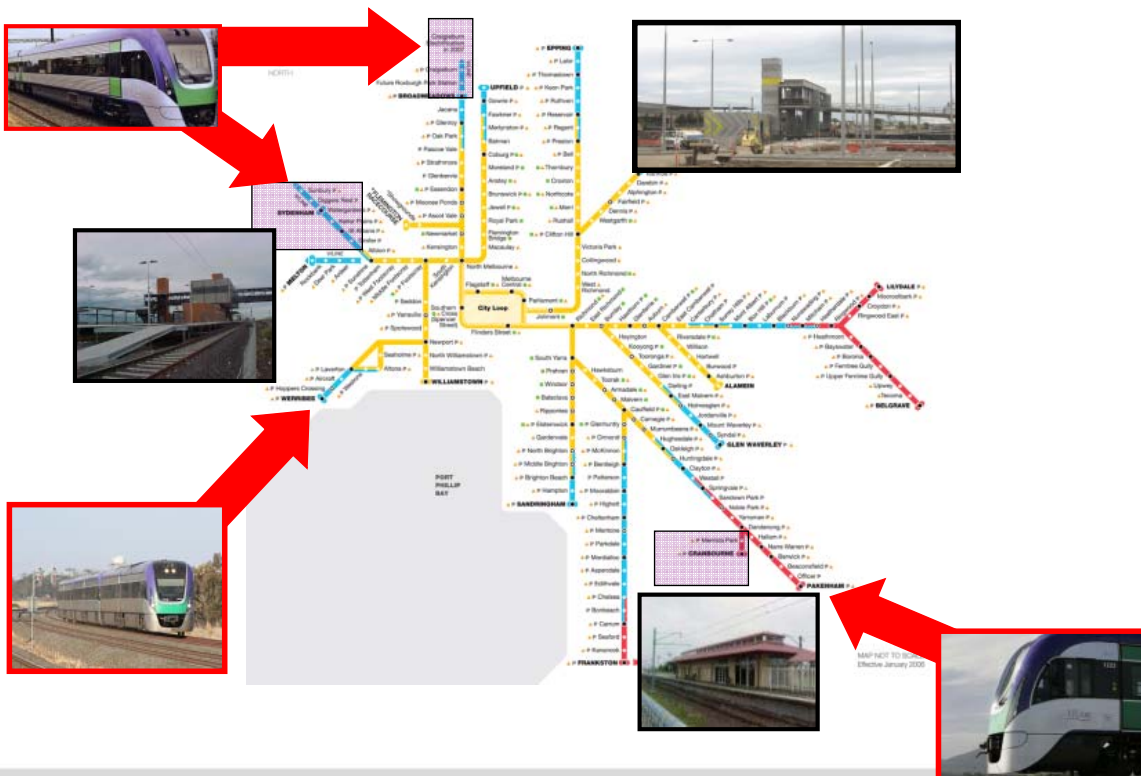
- 33% of services are considered to be NOT running on time
- On time defined as arriving more than 1 min early of more than 6 mins late

Source: Track Record

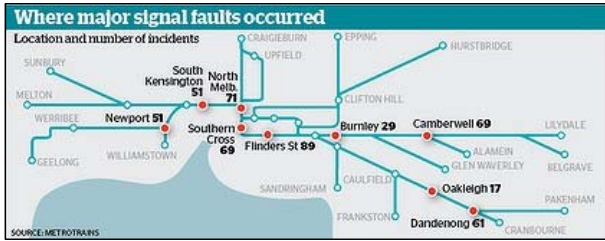
Better performing railways are built on new not old infrastructure and strong resilience/reliability



...yet expanding rail, thus making it more complex, has been our approach to mass transit expansion



Unplanned disruptions are common; e.g. reported signal faults; 1,900 p.a. (5+/day)



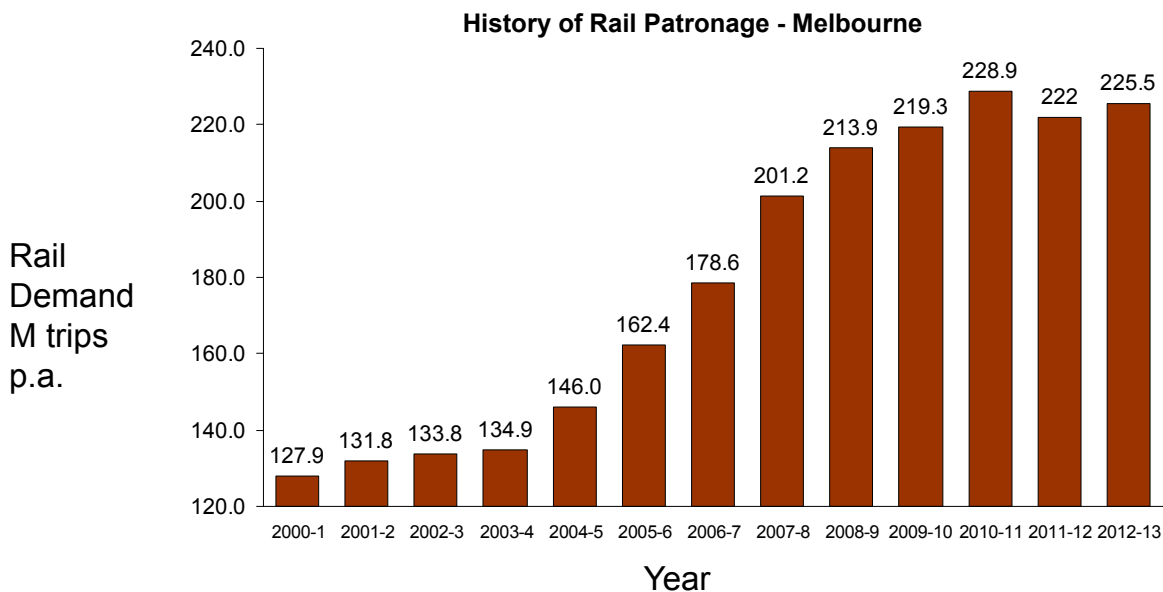
Reported Signaling Disruptions

- 1,900 signal failures p.a. (12 months to August 2013)
- 5.2 per day
- Biggest Locations:
 - Flinders Street Station 89
 - North Melbourne 71
 - Newport 51

Metro Trains
 "We are installing advanced computer technology which improves control of the signalling system, but our field equipment is outdated and requires replacing,"

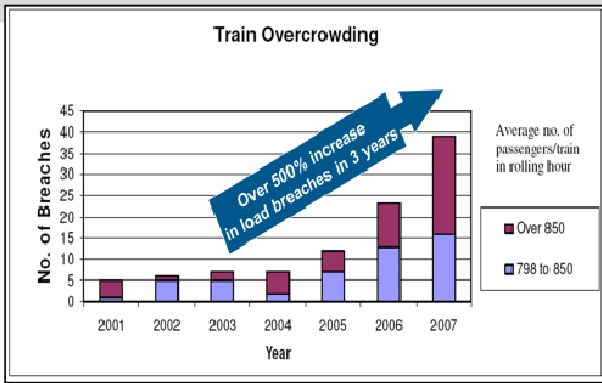
Source: Adam Carey, The Age, 'Signal failures are causing chronic rail delays' 23/10/2013

Melbourne rail demand growth has been impressive by any standard



Source: Department of Transport/ Public Transport Victoria Annual Reports

However the rail network has reached capacity



How Transit Orientated is Melbourne Development?

Density

– the concentration and compactness of development within geographic space

Diversity

– the land use mix including the balance and compatibility of users with each other (and transit)

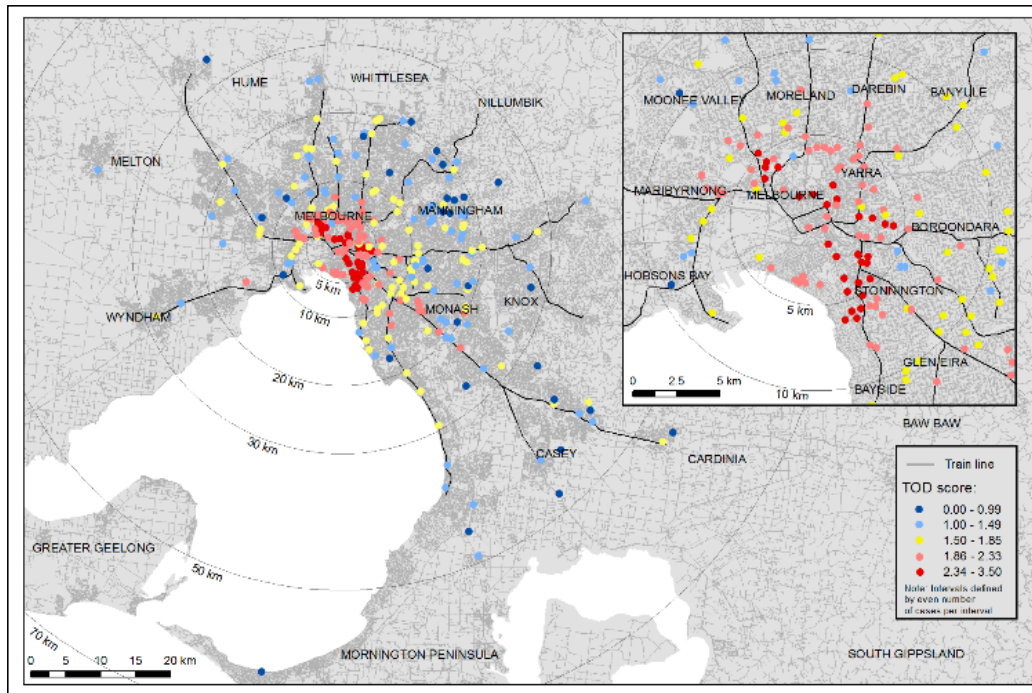
Design

– which relates how the various land uses are combined, linked and presented in terms of ease of access and attractiveness



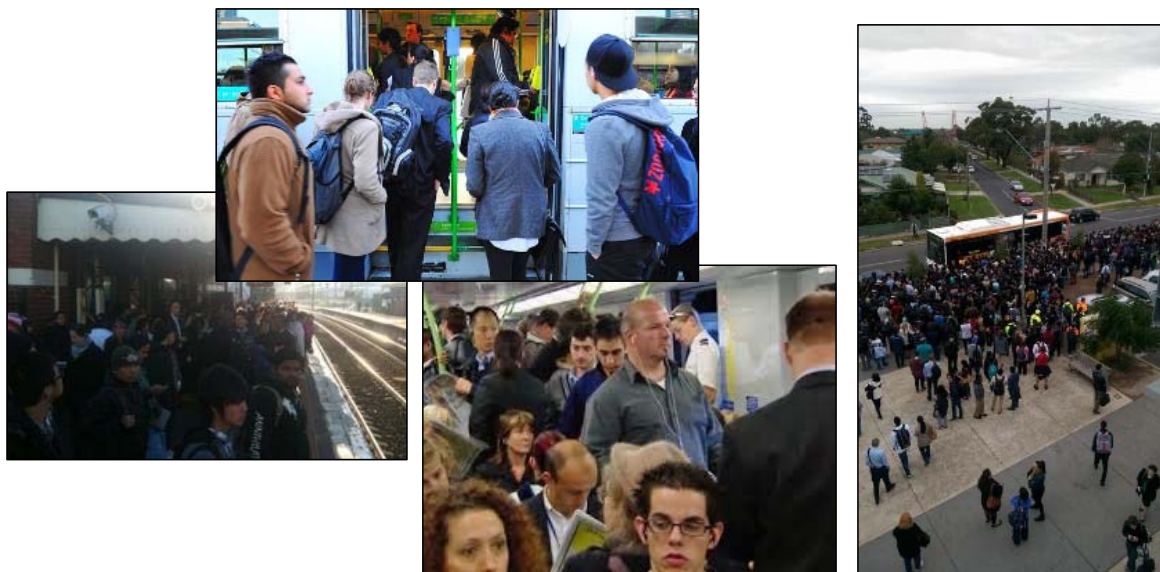
Source: Cervero and Kockleman (1997)

The Transit Orientation of Development – OVERALL Melbourne – only in central areas

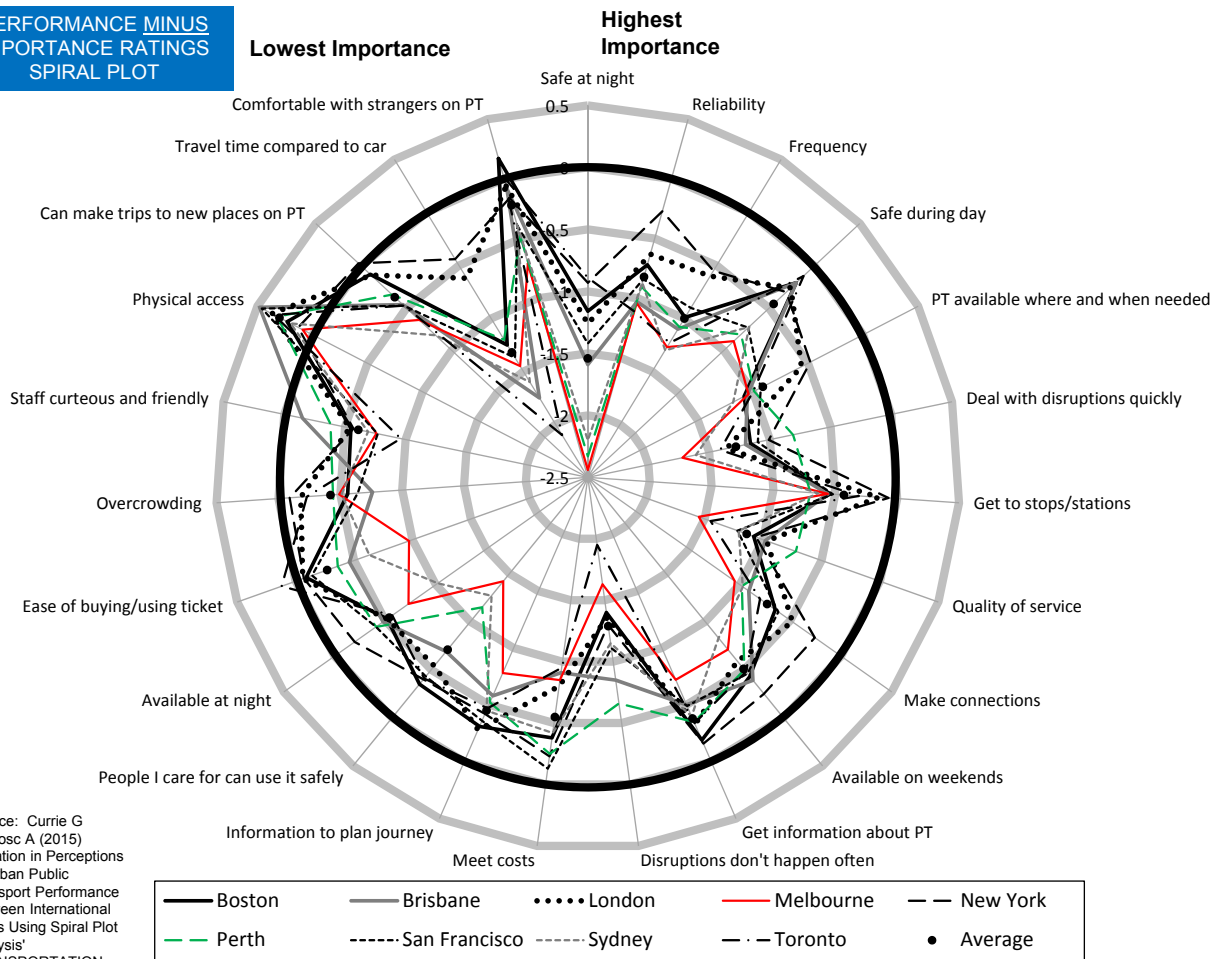


Source: Aston L, Currie G and K Pavkova (2016) 'Does Transit Mode Influence the Transit-Oriented of Urban Development? - An Empirical Study' JOURNAL OF TRANSPORT GEOGRAPHY Vol 55 (2016) pp83-91

So what do passengers think about these issues?



PERFORMANCE MINUS IMPORTANCE RATINGS SPIRAL PLOT



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The Future



Growth in urban travel and car ownership continues to rise

- **Since 1996 car travel has increased at 1.9% p.a. (Challenge Melbourne - issues in metropolitan planning for the 21st century Oct 2000)**
- **Forecasts suggest metropolitan travel will increase by around 20% by 2020 without action to address current trends (NCCC Study)**



Meanwhile road freight volume is expected to double in 20 years

- **Melbourne road freight movements total around 170M tonnes p.a.. This has grown by 120% between 1971 and 1997.**
- **Truck traffic forecast to double over the next 20 years (Challenge Melbourne)**
- **The efficient movement of commercial traffic has been directly linked to a competitive economy and the affordability of consumer products**



We have also stopped being active – this has led to ‘the epidemic of obesity’

Lifestyle underpins Australia's growing obesity problem

The Dieticians Association of Australia says television and less active lifestyles have contributed to increased rates of obesity.

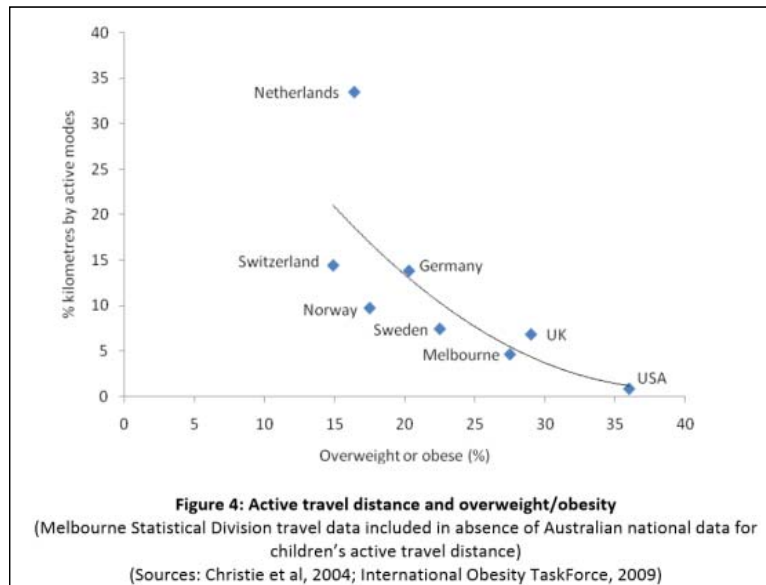
The Australian Institute of Health and Welfare (AIHW) has released a report showing **nine million adult Australians carry excess weight.**

The report estimates at least 16 per cent of men and 17 per cent of women are obese, with a further 42 per cent of men and 25 per cent of women considered overweight.

Ms Collins says **lifestyles have changed significantly over the last century.**

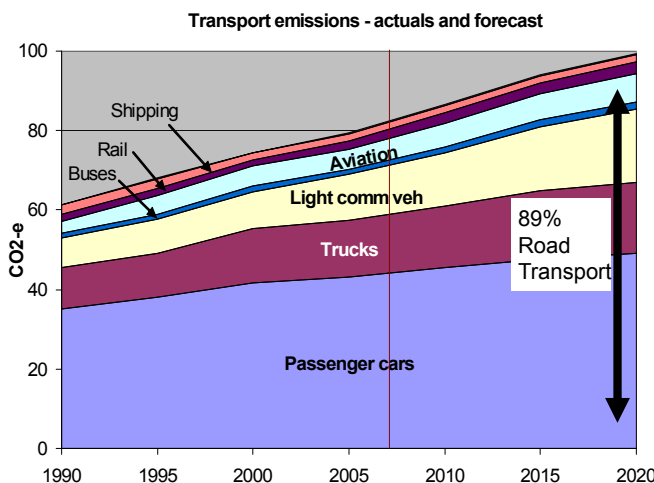
"We use our cars more, most people have jobs where they sit down, most of us don't do as much work around the house, or even the yard.

"There just aren't the same opportunities to be active."

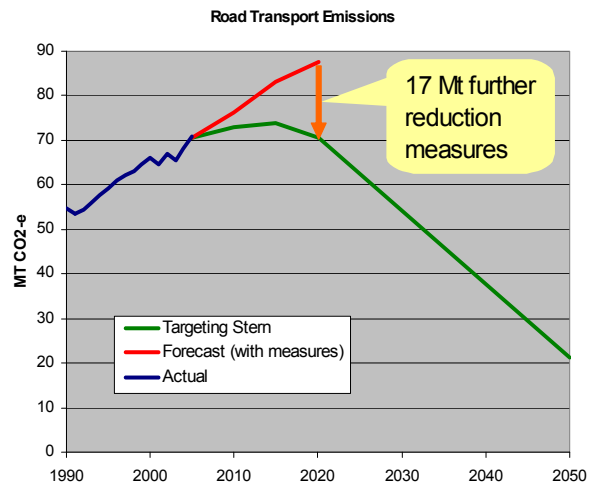


Source: ABC News Online – September 2003

Road dominates increasing greenhouse emissions - BIG change is needed to meet the 'Stern' Target



Source: Australian Greenhouse Office (2006)

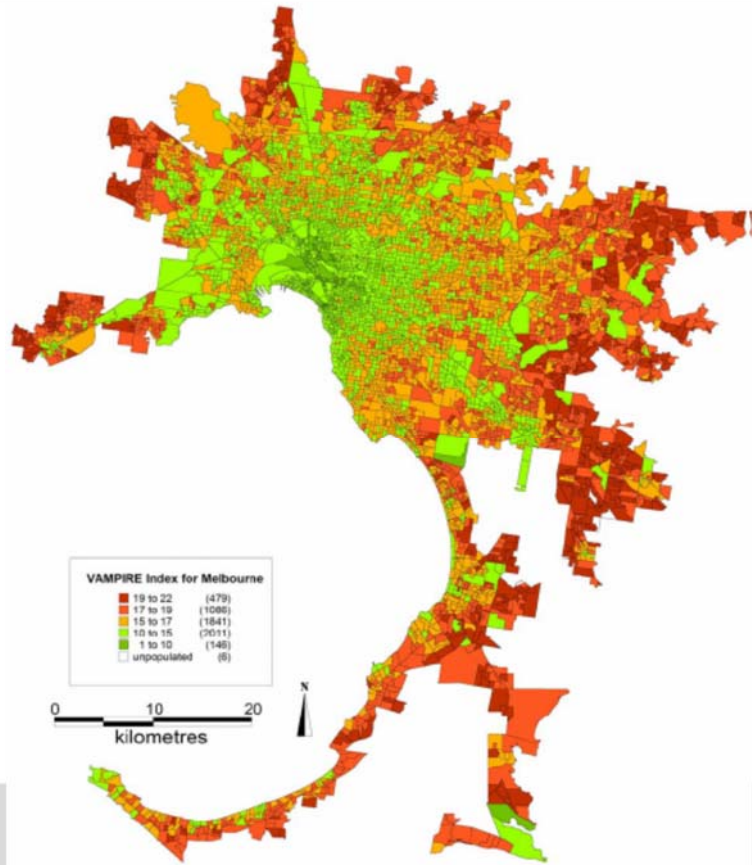


Source: Bus Association of Victoria (2007)

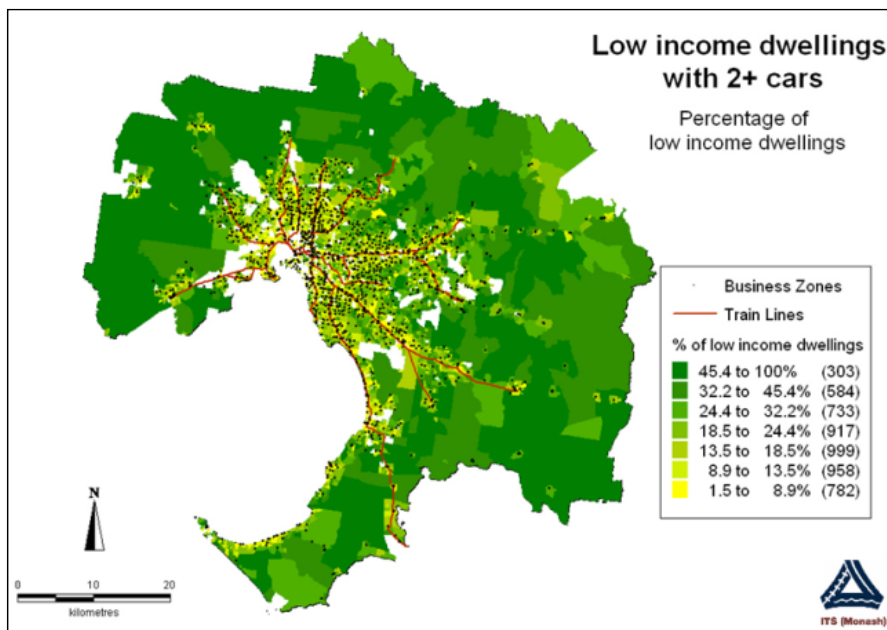
To stabilise at 450ppm CO2e, without overshooting, global emissions would need to peak in the next 10 years and then fall at more than 5% per year, reaching 70% below current levels by 2050. - Sir Nicholas Stern

Research suggests that as fuel prices rise a high share of Melbourne residents are being marginalised

Source: Dodson J and Sipe N (2006)
Shocking the Suburbs: Urban location, housing debt and oil vulnerability in the Australian City
 - 'vulnerability assessment for mortgage, petrol and inflation risks and expenditure' (VAMPIRE).



Monash research has highlighted 'forced car ownership' in fringe urban Australia



- Key Findings - FCO**
- Over 20,000 Melbourne households with income <\$500/week running 2+ cars
 - Zero/Very Low Public Transport
 - 'Forced Car Ownership' – No choice
 - Growing as fuel prices rise
 - Even modest public transport access can reduce forced car ownership

Source: Currie and Senbergs (2007)



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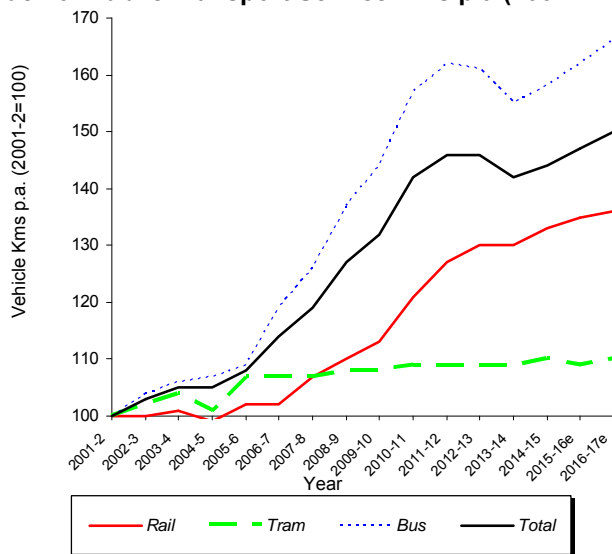
The Drivers of Change

The Future

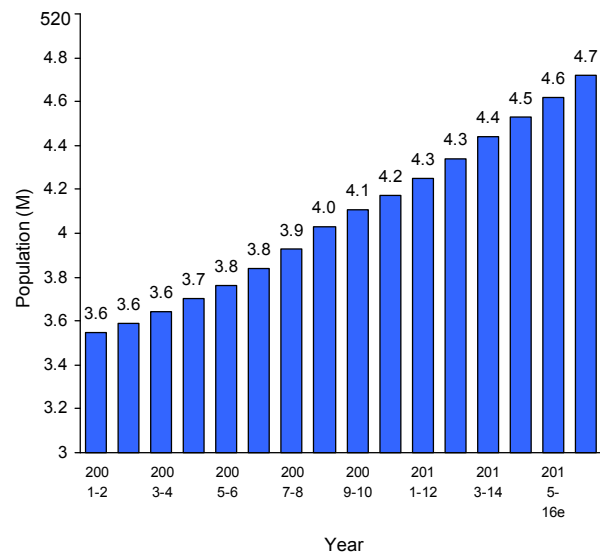


Since 2001 PT service increased 63% (66% bus/ 36% rail, 10% tram) but - but population growth continues at a faster pace...

Index of Public Transport Service Kms p.a (2001-2=100)

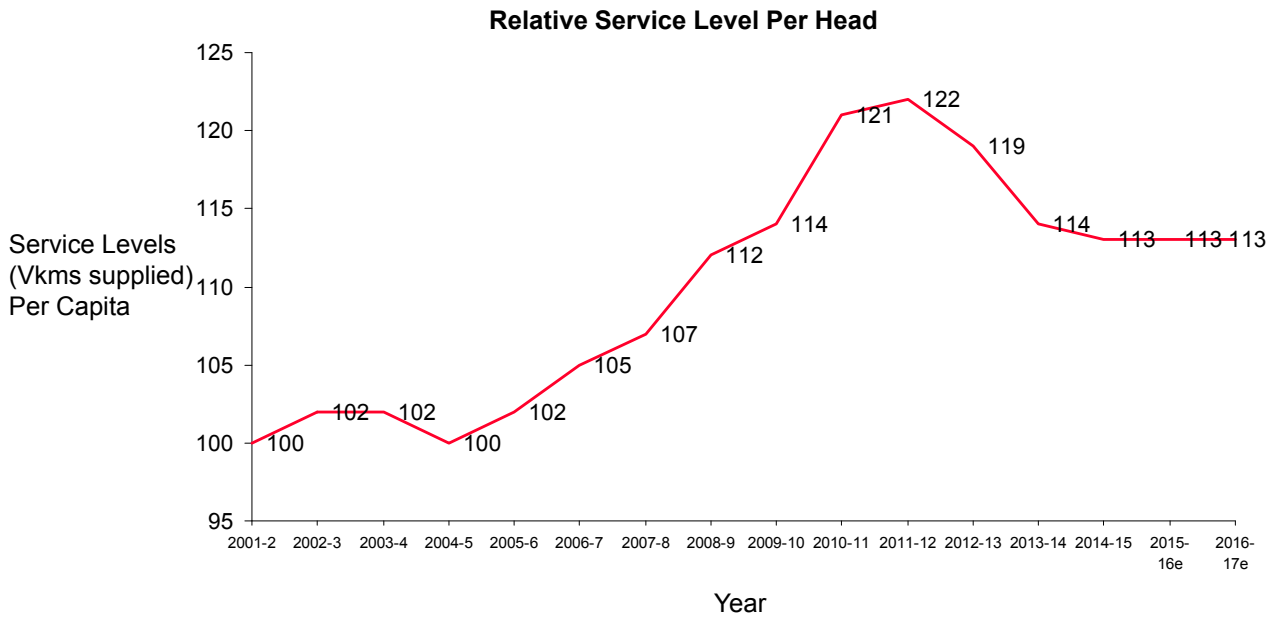


Population Growth (M)



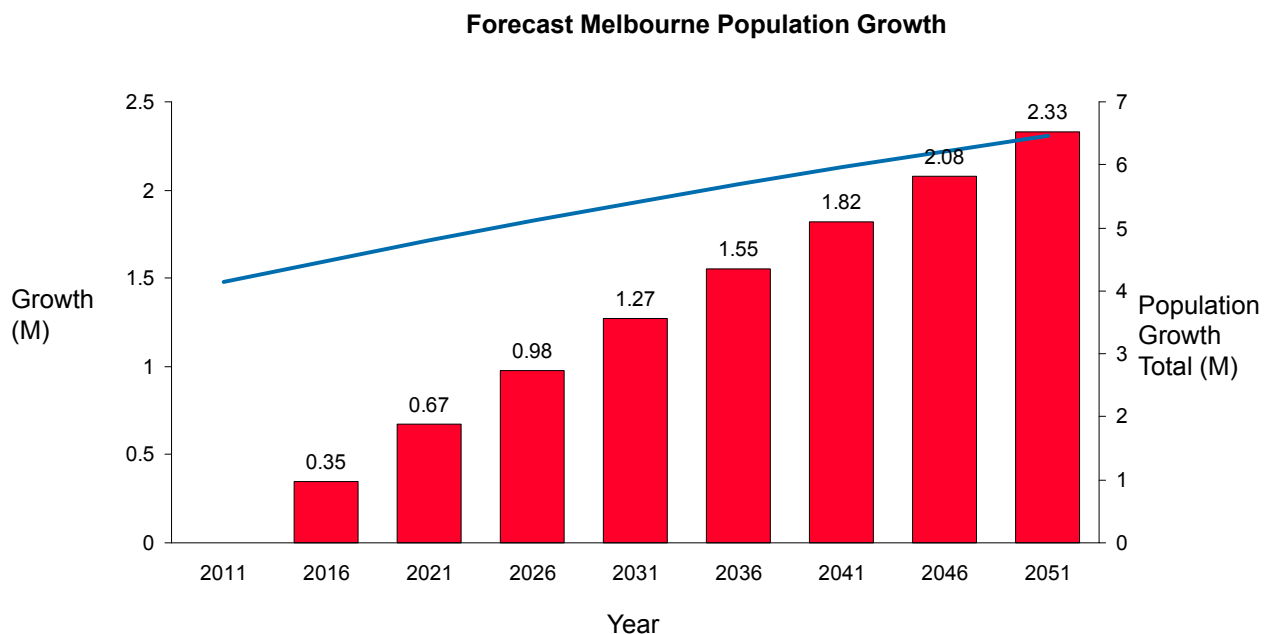
Source: Department of Transport/ Public Transport Victoria Annual Reports

...in last 10 years, per capita service increased to 22% but declined since 2011 (we have gone down by 9% points); recent trend is flat



Source: Department of Transport/ Public Transport Victoria Annual Reports

Melbourne is expected to increase in size by another 1-2M people in 20-30 years



Source: Victoria in Future (2012)

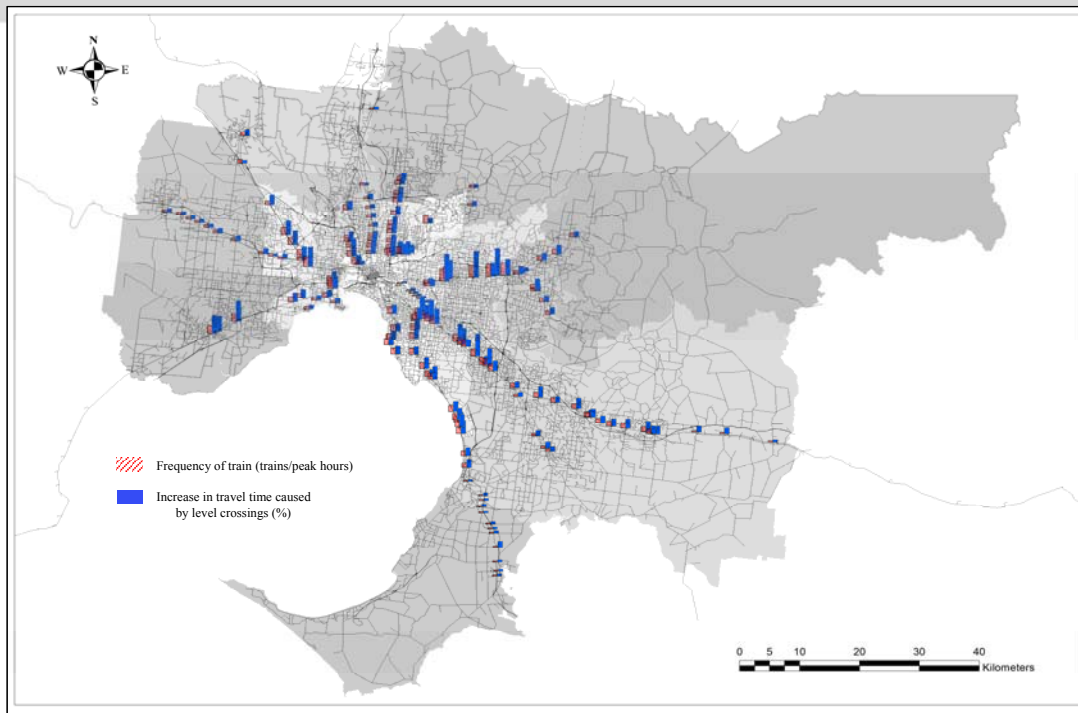
Melbourne Metro; exciting but capacity upgrade is long overdue now – current start date is 2026!



Melbourne rail grade separations; exciting some capacity relief but not an increase in service



Monash Research – Delay Impacts of Grade crossings in Melbourne



Localised variation in traffic travel time delay caused by at grade rail crossings

Source: PhD research of Phuoc Quy Duy Nguyen

Where is tram and bus priority? – SmartBus; downgraded?



About World Transit Research

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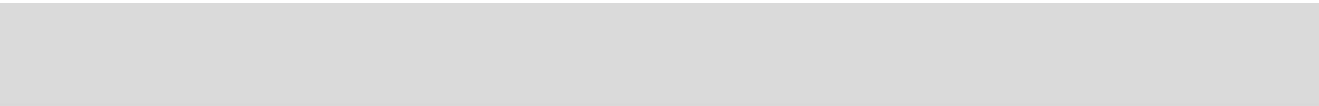
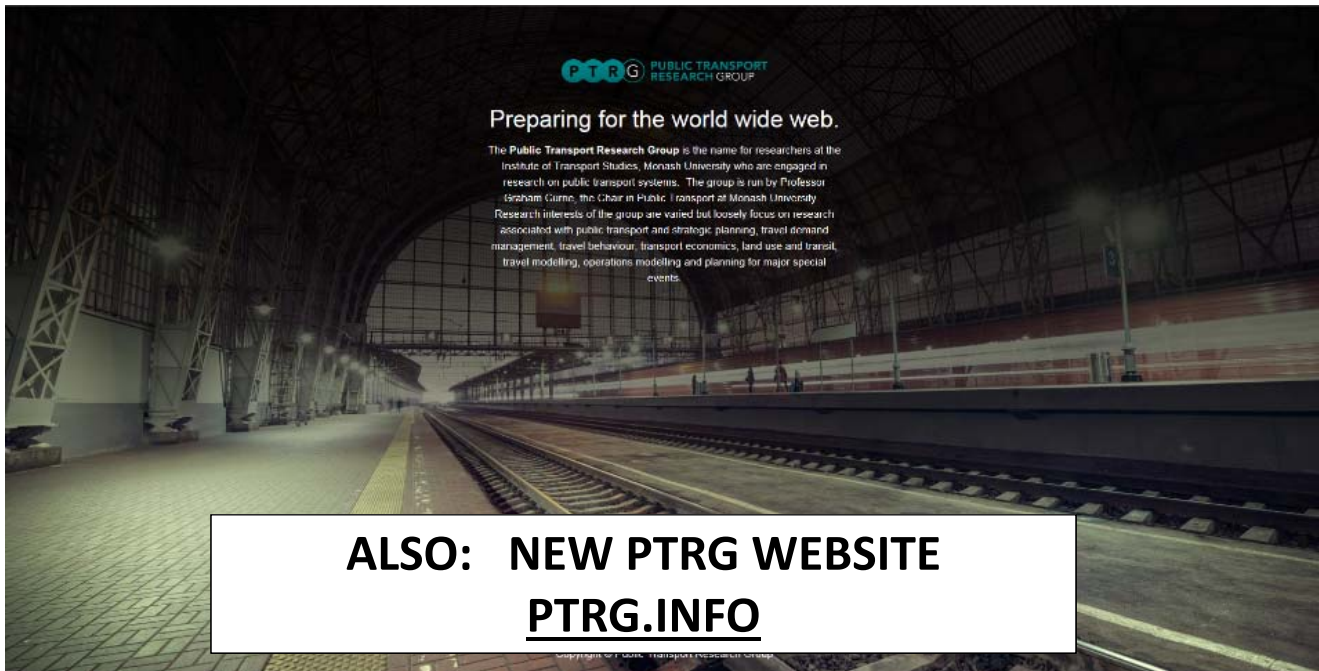
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Preparing for the world wide web.

The **Public Transport Research Group** is the name for researchers at the Institute of Transport Studies, Monash University who are engaged in research on public transport systems. The group is run by Professor Graham Currie, the Chair in Public Transport at Monash University. Research interests of the group are varied but loosely focus on research associated with public transport and strategic planning, travel demand management, travel behaviour, transport economics, land use and transit, travel modelling, operations modelling and planning for major special events.

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